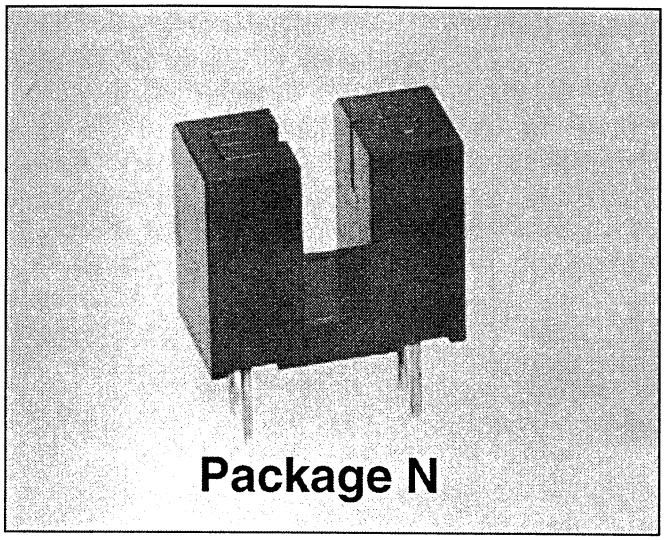
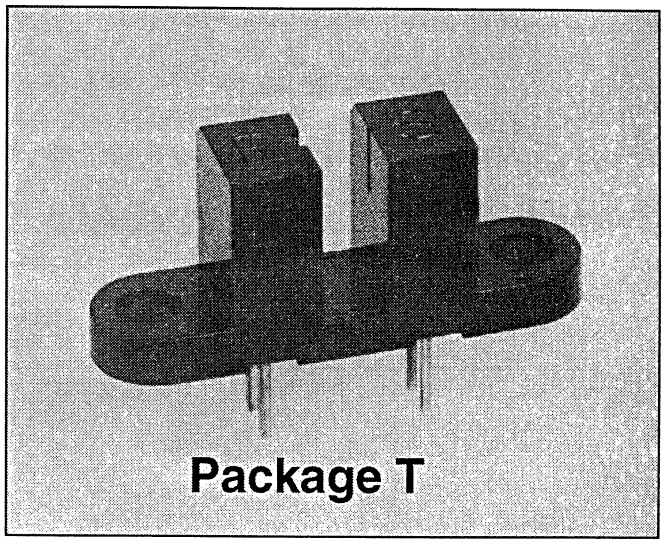
Slotted Optical Switch
Types OPB660N, OPB660T





Features

- Non-contact switching
- 0.125" (3.18 mm) Wide gap
- 0.320" (8.13 mm) Lead spacing
- N or T package
- Printed circuit board mounting
- Enhanced signal to noise ratio

Description

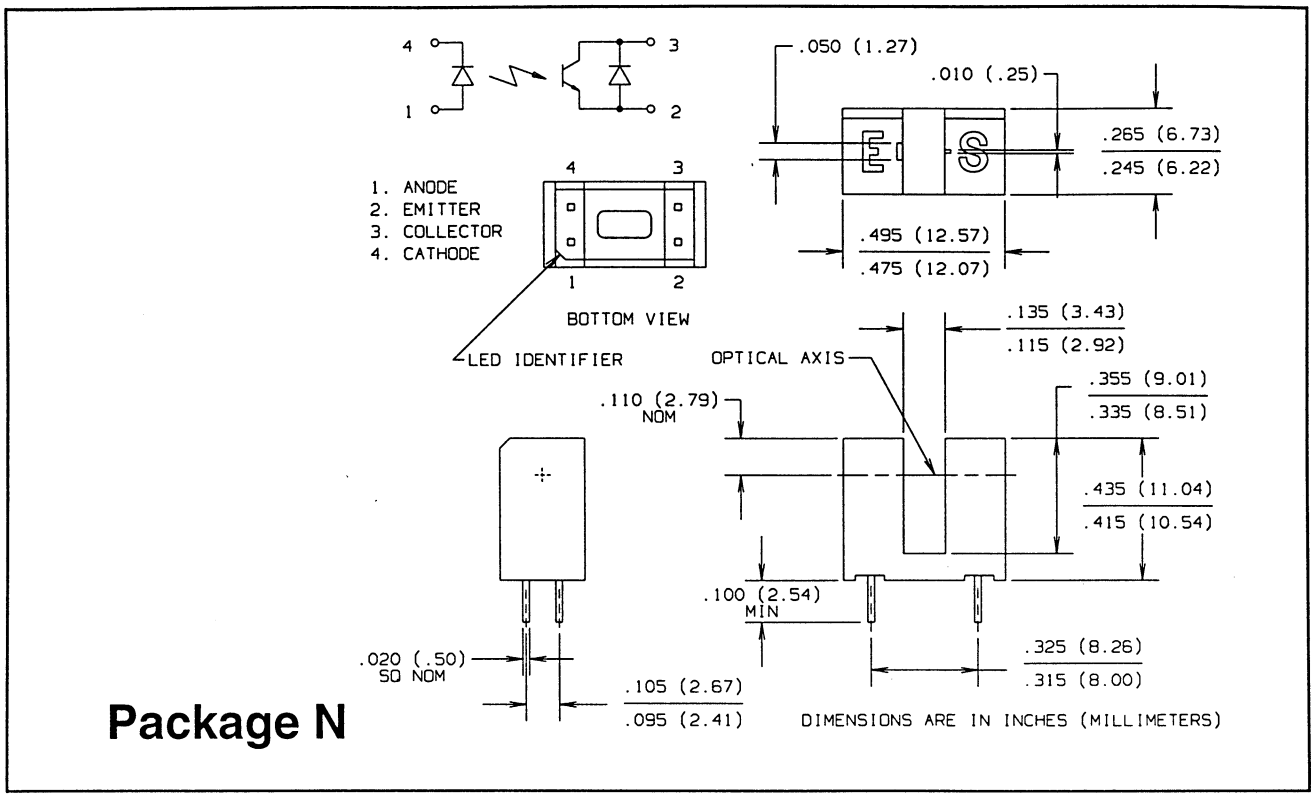
The OPB660 series consists of an NPN phototransistor and an infrared emitting diode mounted on opposite sides of a 0.125" (3.18 mm) wide slot. The emitter has a 0.050" x 0.060" molded aperture while the phototransistor has a 0.010" x 0.060" molded aperture. The phototransistor has an enhanced low current roll-off which improves contrast ratio and immunity to background irradiance.

Absolute Maximum Ratings (T_A = 25° C unless otherwise noted)

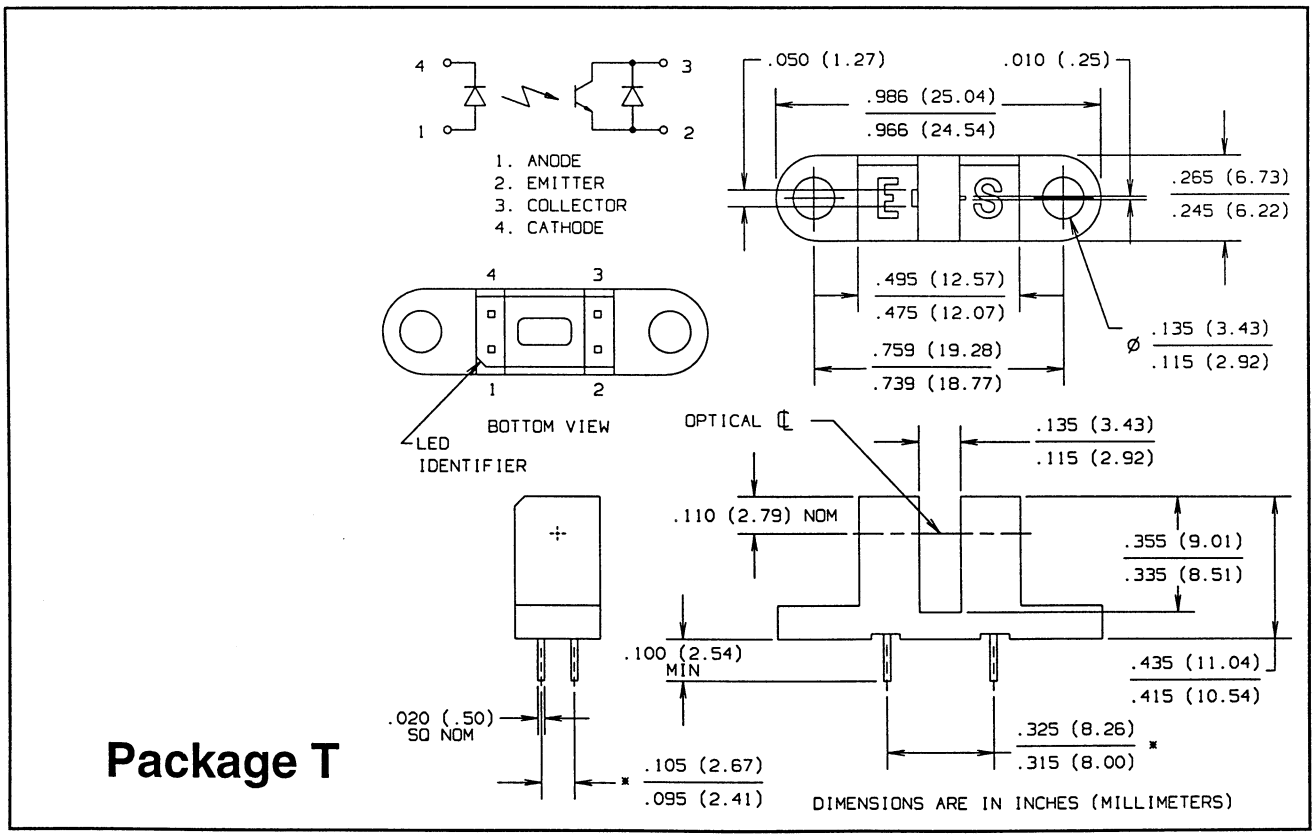
Storage and Operating Temperature	-40° C to +100° C
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 sec with soldering iron]	260° C(1)
Input Diode	
Forward DC Current	50 mA
Peak Forward Current (1 µs pulse width, 300 pps)	3.0 A
Reverse DC Voltage	3.0 V
Power Dissipation	100 mW(2)
Output Phototransistor	
Collector-Emitter Voltage	30 V
Emitter Reverse Current	10 mA
Collector DC Current	30 mA
Power Dissipation	200 mW(3)

Notes:
(1) RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering. Max. 20 grams force may be applied to leads when soldering.
(2) Derate linearly 1.33 mW/° C above 25° C.
(3) Derate linearly 2.0 mW/° C above 25° C.

Types OPB660N, OPB660T



Package N



Package T

Types OPB660N, OPB660T

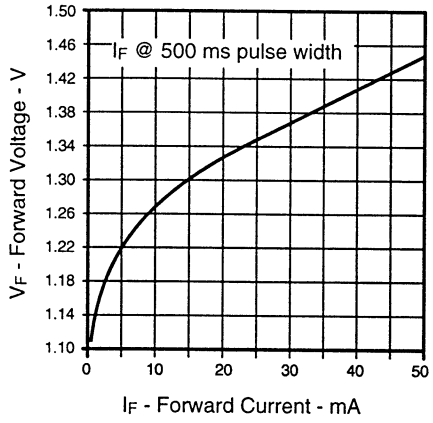
OPTEK

Electrical Characteristics (T_A = 25° C unless otherwise noted)

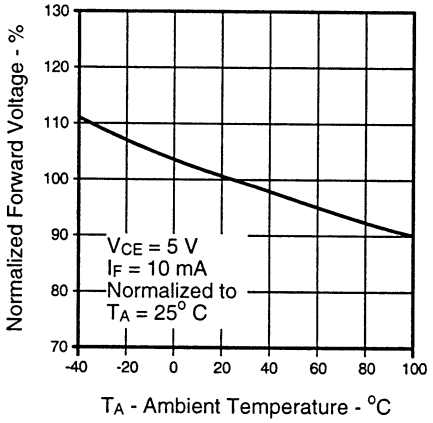
SYMBOL	PARAMETER	MIN	MAX	UNITS	TEST CONDITIONS
Input Diode					
V_F	Forward Voltage		1.60	V	I_F = 10 mA
I_R	Reverse Current		100	µA	V_R = 3.0 V
Output Phototransistor					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30		V	I_C = 100 µA
I_{ECO}	Emitter Reverse Current		100	µA	V_{EC} = 0.4 V
I_{CEO}	Collector-Emitter Dark Current		100	nA	V_{CE} = 5 V
Coupled					
V_{SAT}	Saturation Voltage		0.40	V	I_F = 10 mA, I_C = 100 µA, Gap unblocked
$I_{C(ON)}$	On-State Collector Current	600		µA	I_F = 10 mA, V_{CE} = 5 V

Typical Performance Curves

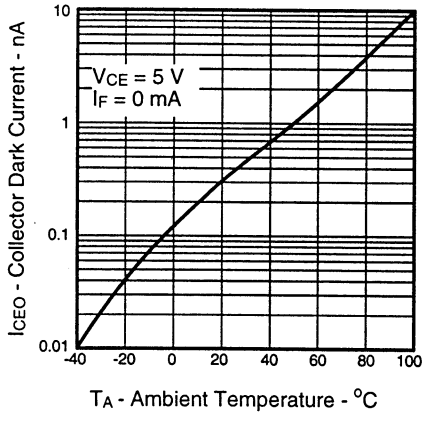
Forward Current vs Forward Voltage Input Diode



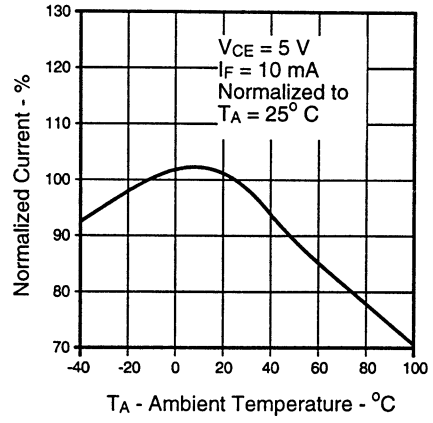
Normalized Forward Voltage vs Ambient Temperature



Collector Dark Current vs Ambient Temperature

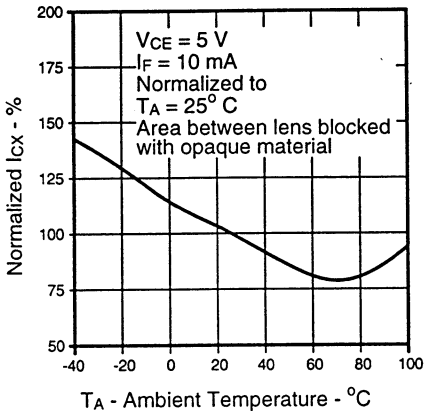


Normalized Output Current vs Ambient Temperature

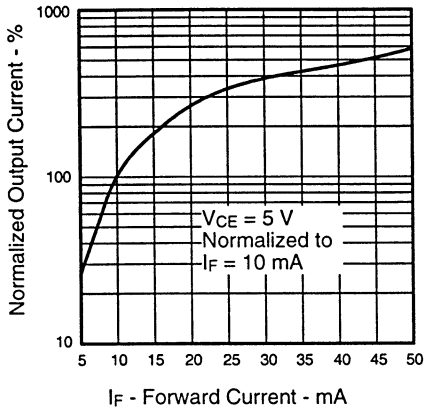


Typical Performance Curves

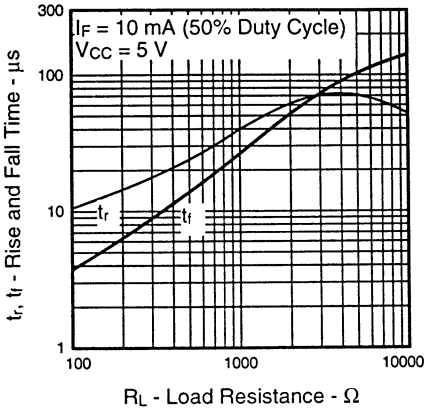
Normalized I_{CX} vs Ambient Temperature



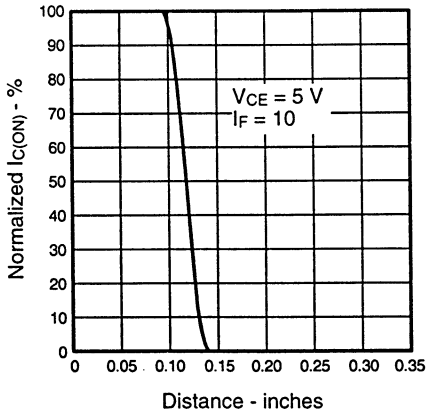
Normalized Output Current vs Forward Current



Rise and Fall Time vs Load Resistance



Normalized $I_{C(ON)}$ vs Distance (Y Axis Blocked)



Normalized $I_{C(ON)}$ vs Distance (X Axis Blocked)